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The ability trap: reductionist theorising about academic ability and the ramifications for education policy and school-based practice

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ABSTRACT

The paper argues that there is a reductive logic inherent in conceptualisations of academic ability in some Western education research as currently configured. Effective interrogation of this concept necessitates consideration across relevant fields of research, as outlined in three areas of critique: that research on educational stratification can adopt a contradictory stance with respect to conceptualising academic ability and defer to innate cognitive ability in pupil test data while denouncing this elsewhere; that cultural reproduction theory is itself a powerful social construction with ramifications for the possibility of equal learning opportunities for all; and that a narrow focus on educational stratification reifies instrumental outcomes, devaluing some of the broader purposes of education. It is argued that these reductive tendencies have ramifications for education policy and school-based practices. A lack of focus on, and clarity about, the concept of academic ability warrants more holistic conceptualising, which draws on methodological pluralism.

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Introduction

The key interest of this paper is with education research on academic ability and its operationalisation in policy as well as for resulting school-based practices. It is argued that reductionist theorising (in terms of ontological reductionism) in bounded research fields (leading to epistemic and methodological reductionism) contributes to an impoverished conceptualisation of academic ability. Academic ability as a term is in wide use amongst school-based practitioners, as well as in education research, where it is also more specifically concerned with a number of different, but related, concepts. Kaplan and Saccuzzo (2017) state that, '[i]n view of the considerable overlap of achievement, aptitude, and intelligence tests, all three concepts are encompassed by the term human ability' (2017, pp. 7–8), which is here configured to refer to the academic context, that is, academic ability encompassing academic achievement, aptitude and intelligence. Academic ability is used as a discrete concept in research concerned with understanding how a whole range of variables correlate with, or predict it (for instance Hansen, 2016; Malanchini, Engelhardt, Grotzinger, Harden,

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& Tucker-Drob, 2019; York, Gibson, & Rankin, 2015) and is in regular use to define pupils deemed to be of high ability, or not. In this paper it is argued that effective interrogation into, and problematisation of, this concept, necessitates consideration across the research fields that pertain. The reductionist and contradictory findings that result warrant more holistic conceptualising, drawing on methodological pluralism, to better support school-based practice.

The arguments in this paper are underpinned by an ontological and epistemic divide that is posited in some Western education research in this area (by which is meant research in largely, but not exclusively, English-speaking journals, as referenced in this paper). The divide is between education research focused on issues of social justice, disadvantage and inclusion, and education research focused on issues and concepts connected with intelligence, academic ability and gifted education (Author). This is certainly not clear cut or uncontested, and there is research which attempts to bridge these concerns (Mazzoli Smith, 2014). However, it is suggested that characterisation of these research fields as constituting a divide is useful, in order to bring to light issues about how academic ability is understood and operationalised. In the first case, research could be characterised as often situated in, or drawing on, the sociology of education, focused on social justice and education, utilising critical theory that foregrounds how structures and cultures of education reproduce disadvantage through the institutional privileging of the middle class. Bourdieu's theory of cultural reproduction is seen as being predominant in this respect, shaping not only scholarly research, but also normative discourse and understandings for practitioners (Reay, 2004). Research with such aims is less likely to draw on individualistic concepts such as intelligence, or concern itself with gifted education. Reference to academic ability is connected largely to the stratification of pupil attainment at group level. Influential work in such a demarcated field would be that of Reay (1998), Apple (2004) and Ball (2010), for instance. In the other case, which could be characterised as largely situated in, or drawing on, the psychology of education, differential and educational psychologists are concerned to research the concepts of intelligence and academic ability, utilising measures of cognitive ability that correlate with and predict academic attainment, creating and advancing the use of cognitive ability tests, for instance. Influential work in this area could be said to have been conducted by the Centre for Evaluation and Monitoring, for instance, which provides 'measures of an individual's potential and progress through school' (CEM, 2020).

The policy correlates of such paradigmatic polarisation can lead to challenging practical ramifications, as policies that exhort schools to ensure challenge for their most able pupils can pull against those that focus on narrowing the attainment gap between the most and least advantaged pupils, as high ability cohorts routinely tend to reproduce patterns of social segregation (Borland, 2005; Ofsted, 2015; Sapon-Shevin, 1994). The tensions for schools practically, and philosophically, are clear. Indeed, there is a tension in the very idea of the sociology of intelligence, which for some rests on a position exemplified by Bourdieu: 'I think one should purely and simply refuse to accept the problem of the biological or social foundations of "intelligence", in which psychologists have allowed themselves to be trapped' (Bourdieu, 1993, p. 178).

Whilst Bourdieu is right to invoke the metaphor of a trap to describe the resulting reductionism of psychological approaches to measures of individual intelligence, the

argument in this paper is that the sociology of education has itself not escaped the reductionist trap in relation to the concept of academic ability, deferring to the logic of biological reductionism that it rejects. Both dominant sociological *and* psychological understandings of academic ability have hindered progress with respect to resulting conceptualisations for school-based practice, as contradiction and obfuscation have led to reductive and biologically deterministic thinking. The focus of this paper is primarily on highlighting where there is the case by looking *across* these fields of inquiry and then how they have informed education policies and school practices. Here practice refers to activities such as psychometric testing, tracking and monitoring systems, and the resulting planning and pedagogical interventions, implicating professionals at many levels, from senior managers to classroom teachers. Examples are given of English and US research, policy and school-based practices, but the implications of this argument are not exclusive to these countries, with Programme for International Student Assessment (PISA) data demonstrating wider impact. It is suggested that more focus on, and clarity about, the concept of academic ability, in conjunction with the key terms in use in this paper – intelligence, cognitive ability and potential – will result in pragmatic gains in terms of an operationalisation of the concept in schools that avoids such reductionism.

The argument in this paper draws on, and moves between, bodies of education research, variously drawing on psychological, sociological and policy-related fields. Only from such a meta-perspective is it possible to bring to light some of the tensions and contradictions inherent in how we operationalise these concepts (Mazzoli Smith, 2014), here, particularly with respect to sociological approaches. At times, the argument will draw on one field of education research to bring to light a particular epistemological construction, and at other times will be situated at the centre of these, in order to look at the issues across different fields of research. Figure 1 demonstrates how these have been demarcated for the purposes of the argument in this paper. Notwithstanding the risk of generalising summaries in such an analysis where categories cannot be exhaustive, the argument highlights some epistemological contradictions that inform, and paper, the resulting policy and practice.

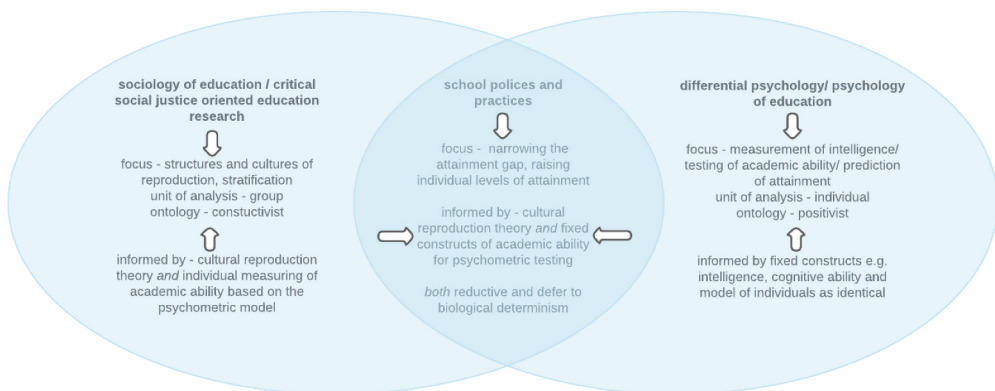


Figure 1. Fields of education research informing conceptualisations and practices around academic ability.

the problem of lack of consensus around definitions. Here intelligence refers to a global, individual human function, which draws on both diverse theories and a particular history of measurement (Mackintosh, 2011). The Wechsler Intelligence Scale for Children (WISC) is referred to specifically as a measure of intelligence (Kaufman, Raiford, & Coalson, 2016), although elsewhere it is also referred to as a measure of general cognitive ability (Gomez, Vance, & Watson, 2016). Cognitive ability is defined by its measurement in cognitive ability testing, the most widespread test of reasoning ability in UK schools (Deary, Strand, Smith, & Fernandes, 2007). The manual of the second edition of the 'British Ability Scales' (BAS) (Elliot, Smith, & McCulloch, 1996) claims explicitly that it is a measure of cognitive ability and not intelligence. Academic, or educational attainment, is used to refer to the highest level of education an individual has successfully completed (Schneider, 2011), whereas academic achievement tends towards a broader understanding of success at school, notwithstanding the fact that often it is reduced to a narrow measure of examination attainment (Smith, 2003). (Academic) potential is the most problematic of these terms, and indeed the argument here will foreground this. However, it is in widespread usage in schools as a concept used to refer to future, but as yet unrealised, academic achievement, or attainment, of pupils. Discursive reference to pupils fulfilling their potential is arguably ubiquitous in education, seen, for instance in England, in both education policy documents (e.g. Department for Education, 2017) and widely on school websites and policy documents.

The argument here proceeds by demarcating three areas of critique of dominant social justice/sociological approaches to educational stratification. The characterisation of such approaches is broad-brush, and as a result there is only scope for several illustrative examples. However, the suggestion of a recognisable approach to the issue of stratified educational outcomes is familiar, with Gorard, for instance, referring to the acceptance that educational stratification is worsening as 'the crisis approach to stratification research' (2010, p. 50). It will be demonstrated how such approaches defer to an innate, individual measure of cognitive ability, or intelligence, in drawing on pupil outcome data, whilst disavowing the epistemological implications of such data elsewhere. The ramifications of such constructivist framing for schools, with a lack of clarity about the concept of academic ability, and by extension potential, alongside an undue focus on the instrumental aspects of education, are damaging. The paper concludes by highlighting the affordances of methodological pluralism in this area, as well as existing progressive models of academic ability that could be more widely utilised to mitigate these reductive and deterministic tensions.

Reductionism in research on educational stratification and the link to conceptualisations of academic ability

Contradictions in perspectives on academic ability in sociological analyses of educational stratification

The first critique in this paper, drawing on Nash (1999, 2001), concerns a fundamental contradiction at the heart of dominant sociological approaches to educational stratification, leading to problems in defining academic ability and associated concepts such as potential. The contradiction rests on the fact that such approaches defer to biological reductionism with respect to cognitive ability as innate and measurable in the use of test-

based pupil outcome data, but then elsewhere denounce the use of such measures of ability:

When as sociologists we find it expedient to use the concept of ‘ability’ in our explanatory accounts and ‘ability’ tests in our research, we would be wise to acknowledge the theoretical ontogeny of the concept and to challenge, rather than contribute to, its ambiguities and contradictions. (Nash, 2001, p. 201)

Nash’s (1999, 2001) critique is particularly linked to cultural reproduction theory, which is discussed further later in this article. However, the critique applies more broadly to analyses of educational outcomes utilising datasets including tests based on measures of cognitive ability and/or intelligence, as part of multivariate analyses, for instance, where there is also an over-arching social constructivist framing such that the existence of cognitive ability/intelligence as measured in such tests is found to be problematic. As Nash notes: ‘It seems to be acceptable to use tests of “ability” and evidence generated by them when it is convenient to do so’ (2001, p. 200).

This contradiction arises in part because cognitive ability/intelligence as a testable construct *is* a good predictor of school success and tests based on such a concept have predictive validity. This is unsurprising as they were designed to be so:

Scores from IQ-type tests often account for some 40% of the variance of in academic attainment, by far the largest proportion that can be allocated. This is why IQ theory is so powerful: it appears to explain the largest proportion of the variance in academic attainment. (Nash, 2001, p. 190)

These data are therefore not only descriptive with respect to social stratification, but also predictive of it, and as such evidence the extent of the stratification by educational attainment that research with a social justice aim seeks to highlight. The pertinent epistemic question is what exactly is (and is not) being measured and it is the interrogation of this that should be more prominent. Whilst many sociologists of education, for instance, would agree that what is being measured is indeed the critical question, the use of pupil datasets is still often adopted unproblematically in research discussing educational outcomes. Data that includes measures of cognitive ability are often used to predict educational progression, or the yet more ambiguous concept of potential, on which arguments about just outcomes are made.

A case in point is the many studies that argue how high-attaining, socio-economically disadvantaged children are academically overtaken by their less highly attaining but more socio-economically advantaged peers (e.g. Goodman & Gregg, 2010), exemplifying the crisis approach to stratification. Indeed, this particular line of argument has taken hold of public imagination and driven education policy across different political parties, despite notable methodological issues, such as regression to the mean (Jerrim & Vignoles, 2011). The argument in this paper looks primarily at the ontological and epistemic issues, as conflicting paradigmatic framings of ability influence school policies, as illustrated in Figure 1, leading to obscurity in practice. Morris, Dorling, and Davey Smith’s (2016) research, seeking to determine the extent of socio-economic disparities while accounting for ability, is considered as an example of this. The paper demonstrates the correlation between ability at age eight, measured by the WISC intelligence scale, and GCSE and A-level results, at group level. The WISC measure is designed to be predictive of

scholastic ability as measured in attainment tests. The importance of cognitive ability as a predictor of later expected levels of achievement underpins the findings and conclusion of the paper:

It therefore appears that the education system within the UK is failing socio-economically disadvantaged children by not allowing them to even reach their expected educational level based upon their early childhood achievements. (Morris et al., 2016, p. 2)

In their paper the authors therefore endorse age eight as an appropriate point at which to take a measurement of cognitive ability that can be used to predict expected levels of achievement in the future. The arbitrary nature of the testing paradigm, much critiqued in the sociology of education more broadly, is brought to light here. This early measure of cognitive ability is taken as an important indicator of potential, and we expect to see achievement borne out in a predictable way, based, therefore, on an essentialist belief about individual levels of cognitive ability. For a child who fails to achieve their potential, being overtaken by a less bright, but wealthier child for instance, there is indignation. A child's early levels of cognitive ability appear, implicitly, to be conceived of as justly predictive of later outcomes and hence somehow more 'natural' with respect to social justice assessments than outcomes driven by socio-cultural factors.

Morris et al.'s work states that academic attainment is known to be influenced by genetic and biological factors, claiming that their 'use of the thoroughly administered WISC test provided a robust indicator of a combination of inherent cognitive ability and already learnt behaviour by age eight combined' (Morris et al., 2016, p. 12). Yet by the logic of this argument, why is it not already unfair to predict optimal future outcomes at age eight if this has been in part shaped by learnt behaviour? Are we not on shaky ground to assert any age as the appropriate one upon which to assess fair outcomes? Even if innate/bio-genetic and socio-cultural factors were separable in any meaningful way, there is an assumption that cognitive advantages derived from social advantages are less deserved than cognitive advantages derived from biological/natural ones. The concern here is not with the social justice claims *per se*, but the fact that the logic of such approaches must defer to a biologically deterministic model of ability. The trap then is that in affording such weight to cognitive ability measures and linear models of progression in assessing educational potential and outcomes, the authors are *de facto* endorsing the validity and appropriateness of the test-based measures elsewhere derided as arbitrary and reductive.

One of the paper's authors, Dorling, for instance, states elsewhere that '[w]ithin rich countries, the portrayal of children's abilities as lying along bell curves (as these are natural things) is unjust' (2010a, p. 9) and that 'm]ass testing of children is a symptom of affluence' (2010a, p. 77). About IQ tests Dorling writes: 'The tests measure how well children have been taught to pass them Intelligence tests have nothing to do with anything innate' (2010b, p. 40). Yet the data on which Morris, Dorling and Davey Smith critique the lack of progress of disadvantaged children in society is on the basis of tests of innate, individual levels of measurable cognitive ability. Dorling also states that '[a]ll children have ability, not potential, capacity or capability . . . [and the] coming battle worldwide will focus on the right to be seen as equally able' (2010a, p. 89), and this critique of the limits placed on any child with respect to how much it is assumed they can learn is powerful and appropriate. However, this is a largely polemical use of the concepts

of ability and potential that contradicts the way these specific constructs are utilised in studies that draw on empirical data, such as that by Morris et al.

There is widespread deferment to constructivist framings of academic ability as being appropriate when social justice concerns are under discussion, but which also draw on empirical pupil data in this way, and this example is in no way unusual or intended to single out these authors in particular. Indeed, the point of this paper is that influenced in large part by the seminal Bourdieusian idea of ‘misrecognition’, whereby something socially formed can be reinterpreted as something natural (James, 2015), approaches to educational stratification fall into this contradictory space of both looking to such empirical data to evidence stratification, whilst also disavowing the nature of what it is the data measures. Ball exemplifies the stance often adopted in stating: ‘Resource differences and collective efforts and investments made or not within families become translated into individual “ability” differences or indicators of different sorts of “abilities”’ (Ball, 2010, p. 162). Yet in concurrently drawing on pupil outcome data to assess social justice questions, such approaches could be contributing to the very forms of misrecognition they critique. This claim is explored further by considering the dominant theoretical framing.

Constraints and limitations of cultural reproduction theory

The second critique focuses on widespread use of a dominant theoretical and methodological approach with respect to questions of educational reproduction and stratification in the Western sociology of education, that is, cultural reproduction theory (Bourdieu & Passeron, 1990). Bourdieu sees the social order as having an overall systemic pattern that gives definition to its parts, such that social distinctions obtain the quality of an objective structure and become definitive for individuals (Hall, 1992). There have been many critiques of Bourdieu as pessimistic, deterministic, reductionist and/or fatalistic (e.g. Alexander, 1995; Goldthorpe, 2007; Sayer, 1999; Willis, 1983) and I refer to and draw on those that have particular salience for debates about academic ability. There is not the scope here to explore Bourdieu’s refutation of the determinist tag and this is not necessarily pertinent to the argument, as what is explored here is normative usage of cultural reproduction such that it is widely understood to theorise the educational trajectories of pupils from different backgrounds and explain how education systems reinforce these trajectories.

One of the key critiques of Bourdieu is that he fails to engage with the subjective experience of objective possibilities among learners who buck the trend for social class reproduction (e.g. West, Fleming, & Finnegan, 2013), or, as Sayer describes it, ‘actors’ own normative judgements in explaining what they do’ (1999, p. 410). The disadvantaged are condemned to repeat the conditions of their existence (Crompton, 2006). Crompton suggests that Bourdieu’s arguments could be considered descriptive and tautological, with an inherent circularity, where practices generate the same further practices and it is difficult to then identify sources of change. Crompton notes the importance of recognising this, given that the family context is the locus:

Indeed, this circularity is inevitable given that the reproduction of both economic and cultural capitals takes place over the life cycle of the family. Thus accounts of this reproduction are bound to be descriptive Most families will continue to do their very best to assure the position of their children within the limits of the resources they have available (2006, pp. 671–672)

Linked to this is the critique that Bourdieu's view of cultural capital is seen by some as too constrained (West et al., 2013), neglecting the psychosocial, for instance. If we consider the evidence from widening participation studies and lifelong learning, this certainly appears to be correct, in that narrative research highlights the complex psychosocial schema necessary to interpret more fully individual lived experiences of progression in education (Formenti & West, 2014). West et al. argue that to have a fuller understanding of capital, we need 'more fine-grained, psychosocial analysis of how inner worlds may shape outer worlds' (West et al. 2013, p. 123). This is curtailed because of Bourdieu's focus on the 'socialized body' (James, 2015), in what Goldthorpe refers to as an 'over-socialized' view of the individual (2007, p. 8). Sayer describes Bourdieu's view of action as lying 'between the extremes of external determination and rational choice, having an unexamined, bodily, practical character, scarcely mediated let alone directed by reason' (1999, p. 405). The result of applying this theorising in practical terms, to follow Bourdieu's edict, is to find that the concept of cultural capital is partial, unable to account for what matters to people in a holistic sense, leading, itself, to misrecognition.

Lamont and Lareau (1988), have argued that the grounds of distinction are too diverse to be understood in one totalising, reductive, zero-sum model. Silva and Smart (1999) refer to more than one normative guideline to provide the context for people's different locations and we fail to take account of lived experiences if we disallow diverse, and arguably ever-increasing, routes for distinction, as technology democratises sites in which distinction can be obtained, for instance. An on-going critique, therefore, is that the framework of class does not subsume all else within it and that distinctions are evaluatively and meaningfully based on other categories such as ethnicity, gender, religion and a host of lifestyle identities that do not fall into clear groupings.

If we accept this critique of cultural capital as partial, able to obscure the diversity of factors that can contribute to the structuring of the learner in school, this then links to the suggestion that implicit understandings of academic ability are problematic. Dunne and Gazeley note that '[t]here is little conceptual clarity about the relative terms "ability" and "underachievement"' (2008, p. 453) and comment on the uncritical use of prior attainment data as encouraging teachers to underestimate the educational potential of working-class pupils. Dunne and Gazeley found that where teachers were likely to locate working-class students' underachievement in areas beyond their sphere of influence, the underachievement of middle-class pupils was thought about in terms of what could be done in the classroom to address it. Such teacher beliefs have also been found in research related to *Poverty Proofing the School Day* in England (Mazzoli Smith & Todd, 2019). This stance accords rationally with the logic of cultural capital as developed largely in the home and its potential misalignment with normative school culture. If the normative usage of cultural capital accepts it as largely the preserve of the middle classes, and tends towards a conceptualisation that is holistic and causally deterministic, rather than the partial, it is rational for teachers to impute a limit in terms of what they can do to improve the achievement track of disadvantaged pupils. This will be particularly acute in an educational climate that affords great weight to the predictive potential of outcome data, which also reinforce the theory of cultural reproduction, as discussed earlier.

Work on the nature of self-fulfilling prophecies in education suggests that negative ones are more powerful than positive ones and that they are more powerful among more

disadvantaged students (Jussim, Eccles, & Madon, 1996). Hattie (2008) endorses the impact of self-fulfilling prophecies in connection with demotivation and discusses evidence that shows teachers are likely to have their students meet their expected outcomes:

Based on this evidence, teachers must stop over-emphasizing ability, and start emphasizing progress (steep learning curves are the right of all students regardless of where they start), stop seeking evidence to confirm prior expectations but seek evidence to surprise themselves, find ways to raise the achievement of all, stop creating schools that attempt to lock in prior achievement and experiences, and be evidence-informed about the talents and growth of *all* students. (2008, p. 124)

Hattie's reference to ability here underscores the reductive trap being highlighted in this paper. The largely socially determined and culturally constructed nature of underachievement, when seen in the light of the dominant theory of cultural reproduction, appears to be working as a barrier as real in its impacts as belief in innate ability, because of the implicit link between the two. If pupils' perceived lack of cultural capital influences teacher efficacy, then this is telling of a determinism that lessens the likelihood of equal educational opportunities being made available in schools in practice. It is likely that an implicit link exists for teachers between the concept of cultural capital, construed as largely socially situated and structurally transmitted, and academic ability, construed as largely innate and individual, linked to teacher efficacy. This has been explored by Nash (2005), drawing on Bernstein, but the argument could also draw upon Bourdieu's own caution about the power of socially constructed academic categories. Despite Bourdieu's directive to 'put into practice' his concepts (Reay, 2004, p. 440), we see how they have a powerfully descriptive role in educational discourse, and are utilised as over-arching theory, shaping – and arguably delimiting – school-based practices as a result (Mazzoli Smith & Todd, 2019).

James (2015), in a sympathetic critique of Bourdieu, suggests that Bourdieu's compass – or scale – of analysis is such that it is hardly likely to deliver recipes for action. However, he does argue that this does not prevent change for the better. Yet, on the contrary, it can be argued that the widespread usage of a reductive model of cultural capital as only a partial vehicle for understanding is contributing to the prevention of change away from a legacy of biological determinism about academic ability (White, 2006). A shift away from this dominant and obfuscating discourse is needed, such that progressive, holistic understandings of academic ability can come to the fore, drawing on a wider and more comprehensive understanding about fostering academic ability, in order to better support the teaching and learning of all pupils.

Instrumentalism and the focus on educational outcomes

A third critique focuses on an instrumental conception of education as outcomes-oriented and zero-sum that dominates many social justice analyses of educational stratification. The concern is about reductionism again, in that analyses largely fail to account for the value of education as in any way intrinsically worthwhile, or meaningful, other than through the acquisition of credentials. Cultural reproduction theory draws on an economic logic that is applied to a host of spheres of life, including education, in that capitals all, ultimately, have an exchange value. As Bourdieu writes, 'economic capital is at the root of all the other types of capital' (Bourdieu, 1997, p. 54) and '[cultural capital] is appropriated by agents and implemented and invested as a weapon and a stake in the

struggles which go on in the fields of cultural production' (Bourdieu, 1997, p. 50). Sayer refers to Bourdieu's economic view of culture in characterising the dynamics of the social field 'as an amoral economy' (1999, p. 407) wherein action is 'instrumental, egotistical, and amoral' (1999, p. 409). Sayer argues that it is important to distinguish between use-value and exchange-value and the contingent relation between the two, yet this is overlooked in an ostensibly instrumental perspective. Sayer notes Bourdieu's zeal for 'instrumental action' and the denial of things that can be valued for their own sake (1999, p. 407). So, whilst educational capital has an exchange-value and is a positional good that can become devalued as more people acquire it, this does not affect use-value (Sayer, 1999), which is not devalued if we consider the learning of the individual, or group, in and for itself. Yet the importance of PISA data, for instance, demonstrates the increasing demand for international outcomes-based, standardised testing for the purposes of comparability. These outcome metrics then become a proxy for the learning process in context, when, in fact, the cross-sectional methodology underlying such standardised testing ignores the longitudinal nature of learning understood in differing contexts. About PISA data Goldstein says:

Perhaps the major [critique] centres around the narrowness of its focus, which remains concerned, even fixated, with the psychometric properties of a restricted class of conceptually simplistic models. There is almost no reference to debates about the appropriateness of these models, nor is there reference to methodological and substantive critiques. (Goldstein, 2004)

Analysing the benefits of education as being wholly connected to attainment, and then further progression in labour market terms, is driven by a human capital model of education as developed from the University of Chicago economics of the 1960s. Yet as Robeyns states: 'Human capital theory cannot explain the behaviour of someone who wants to spend her time studying something without any prospect of economic returns from this education' (2006, p. 72). The corollary of this in terms of cultural reproduction theory is that we disregard, or fail to see, intrinsic interests with no instrumental value, or if we do notice these, we only see them as a function of the dominant culture, which in *educational* terms seems unacceptably narrow. The link here with conceptualisations of academic ability is that currently, tests of cognitive ability are largely developed to be predictive of academic attainment as measured in further tests. Reinforcing an interest in this instrumental conception of educational outcomes and worth, by focusing too exclusively on outcome measures and taking these as a proxy for educational value in a more general sense, is reductionist with respect to a broader understanding of the purpose, or meaning, of education. Even within the logic of the instrumental focus, when children are facing such a fast-changing and likely unimaginable future world of work, a more progressive conceptualisation of academic ability is timely. In the context of an unpredictable future, the extant model of narrow measures of cognitive ability, predictive of an already conceived set of attainment outcomes, seems limited even by the logic of this instrumental reading of the purpose of education.

A metrics-led, instrumental approach to education is often critiqued as the product of a neo-liberal and unduly individualist ideology (e.g. Apple, 2004; Biesta, 2015) and yet it appears to be solely these outcomes that are taken as adequate grounds on which

to assess educational value in research on stratification. This leads to the unwelcome metaphor of education characterised as a race. As Roberts writes: 'Boosting working class children's performances will not lead to increased upward mobility if the middle classes maintain their lead' (Roberts, 2009). Such arguments fall prey to the reductive trap, leading inevitably to the conclusion that 'equalising attainment will depend on capping middle-class progress' (Roberts, 2009). Arriving at a place where capping any child's progress can be legitimately called for is to be totally in thrall to an instrumental model of metrics-led education to the exclusion of all else. Such a statement, made in another context where the purpose of education is more broadly configured, would be baulked at on ethical grounds and would arguably be considered anti-educational and unjust.

Whilst a focus on the instrumental outcomes of education does matter, it must surely be balanced with an understanding of broader educational values and purpose, and an awareness that metrics-based outcomes and accreditation are neither wholly deterministic of lives thereafter, nor adequately represent the purpose of education. Without this broader focus in social justice approaches to education, we promote *de facto* instrumental outcomes as those that matter. Here the reductive trap means that attainment data are reified and seen as a proxy for educational value *in toto*. Brown highlights what is lost when this happens, whilst also firmly endorsing the importance of a class-based analysis of educational outcomes as part of a sociological approach to education:

A wider conception of social justice in the study of education and social mobility should also include quality-of-life issues This wider research agenda would help overcome education being treated as a 'black box' in a lot of the social mobility literature, with an almost exclusive focus on class differences in education attainment. Issues of curriculum, pedagogy and student experiences are largely absent because the education system is treated as a monolithic sorting machine within which class inequalities shape the opportunities and rational responses of students. (Brown, 2013, p. 691)

There are areas of education research where a trend away from this focus on educational progress, achievement and/or attainment can be seen. For instance, the field of Educational Effectiveness Research (EER) has begun to diversify the range of educational outcomes considered. As Reynolds et al. write, 'these include non-cognitive outcomes such as student well-being', although 'student achievement is still the predominant effectiveness criterion in EER' (Reynolds et al., 2014, p. 205). The adoption of greater methodological pluralism in this field is also to be noted, as is the dynamic theory of educational effectiveness (Creemers & Kyriakides, 2008), which is comprehensive in nature, looking across different levels in an education system and foregrounding the study of change. However, the *What Works Clearinghouse* methodology remains positivist, permissible research utilising experimental and quasi-experimental design to measure educational outcomes domains, described as 'a group of closely related outcome measures, believed to provide information on the same underlying skill or ability' (WWC, 2020).

Critical thinking and conceptualisations of academic ability

A particular example of how the reductive logic of the approaches highlighted thus far may undermine a broad understanding of educational purpose is with respect to critical thinking. Nash (1999) claims that intelligence and cognitive ability testing are at least in some respects testing the higher-order thinking skills that we esteem across all levels of education. A hierarchical language of cognitive skills and abilities is ubiquitous in education when construed as critical thinking, but downplayed or ignored when the focus is on outcomes as understood through class analysis. In response to Bourdieu's argument that the cognitive skills favoured by schools should be recognised as an artefact of the class-cultural system, a form of symbolic violence, with no legitimate claim to superiority, Nash (1999) states that certain cognitive skills are necessary for the effective mastery of any form of pedagogy and that this is culturally irrelevant. Here again, resistance in the sociology of education to focusing on academic ability as a legitimate concept in education – including the skill, or ability, to think critically – potentially undermines research on and the teaching of these concepts.

If we see higher-order, or critical, thinking as more than a cognitive skill and rather part of a wider disposition of 'critical being', drawing on affective aspects (Biggs, 2011), the argument about the reductive trap still holds. Mezirow, the seminal figure in the field of transformative learning, espouses as central to his work the metacognitive application of critical thinking, which is explicated well by West et al. (2013):

Critical thinking transforms an acquired frame of reference with potentially radical consequences. Critical rationality involves an old mindset being replaced by a different world view. While any mindset consists of values, beliefs and feeling as well as concepts, transformation has to do with changing epistemic assumptions. . . . It is persons in relationship that lie at the heart of epistemic shifts. (West et al., 2013, p. 121)

These relational and dynamic aspects of critical thinking, drawing not only on cognitive, but also conative and affective dimensions of learning, extend beyond concerns with the cognitive measures discussed earlier. They necessitate an expanded and holistic, rather than a retracted and reductive, framing of the educational endeavour (and by implication the concept of academic ability). Understanding bodies of knowledge as meaningful only in terms of discourse and power is also reductive, however, and leads to the devaluing of what should arguably be most at stake in terms of educational purpose: a certain critical disposition whereby one is able to avail oneself of knowledge and skills in order to think reflectively and critically about one's place in, and perspective on, the world. Giroux acknowledges this, in referencing Willis' classic study of working-class boys, *Learning to Labour*:

Willis's lads rejected the primacy of mental labor and its ethos of individual appropriation, but in doing so they closed off any possibility of pursuing an emancipatory relationship between knowledge and dissent. By rejecting intellectual labor, the lads discounted the power of critical thinking as a tool of social transformation. (1983, p. 284)

Yet a predominant theory of cultural reproduction places students in a double bind, whereby they must largely, as a group, fail to recognise the limits of their own resistance. Giroux (1983) notes this as an irony, in that a theory of cultural reproduction with deterministic ramifications denies students the necessary agency to creatively and

actively resist the reproduction of their class consciousness. At a foundational level, there is a disavowal of critical reason in Bourdieusian social theory, with ‘nothing in lay practice for normative argument to work on, no existing critical impulses to develop’, since all action is subsumed to the instrumental logic of power and interest (Sayer, 1999, p. 417). In utilising Bourdieu, activity around supporting children’s learning is subsumed into the workings of power alone. Statements such as ‘[a] Bourdieusian analysis reveals the intricate dynamics of power which infuse all aspects of parental involvement’ (Reay, 1998, p. 71) are to be expected in the absence of any counterfactual, and through a lens whereby educational value is seen in instrumental terms. There is no possibility of finding out what parents might do in relation to supporting their children’s education in a society where all outcomes are equalised and there could be no material or symbolic benefit in doing so.

Whilst Sayer notes that Bourdieu wishes for actors to become critically self-reflexive, he claims that there is no indication of what this might involve and nothing to furnish the presupposition entailed about the potential to think critically, ‘a possibility which Bourdieu is reluctant to concede in explaining existing practice’ (1999, p. 418). Arguably pedagogy *per se*, construed as radical or not, class-bound or not, should have critical thinking and self-awareness as a central *educational* aim, yet it is argued that pedagogy as a field is itself underdeveloped (Young & Muller, 2013). The reductive logic under discussion here could be found to devalue the importance of critical thinking as a component of academic ability through which change is fostered.

Methodological pluralism in approaches to educational stratification

If dominant sociological, and theoretical, approaches to educational questions are taking us into a reductive trap that is possibly undermining important aspects of the educational endeavour, then methodological pluralism may be one way of mitigating this. Where metrics-based outcome measures tend not to offer explanations ‘of individuals in any real sense, but of groups understood as being composed of identical individuals’ (Nash, 2002, p. 407), then such understandings should be treated as partial and limited. Nash (2002) states that the assumption of individuals within the group as identical, for the purposes of statistical models that drive known facts about attainment, is at odds with realist common sense, as what individuals actually do is often unknown and therefore unexplained. The identification of all relevant variables that contribute to attainment is impossible to achieve and what we ‘know’ at group level does not mirror what we might observe at individual level and we have a lesser social explanation as a result. Without any deep knowledge of the social processes by which group patterns are generated, binaries such as innate or socially constructed conceptualisations of ability pertain, leading to the situation whereby whichever side of the fence we are on, we are caught in the same reductive logic. The absence of the affective and relational, in particular, is of great concern in such methodological reductionism:

[M]uch of educational theory and sociological research gives little or no attention to the affective aspects of the learning environment. Students are generally represented in sociological research as if they were simply rational actors, purely cognitive beings learning ‘subjects’ in schools ... (Lynch, 2001, p. 251)

This calls for an educational approach to research on academic ability and allied concepts that draws more self-reflexively and critically on diverse bodies of disciplinary knowledge, through a ‘positive pluralism’ (Crompton, 2006, p. 658). Sayer states that: ‘We have to go beyond sociology as conventionally defined in order to understand its subjects’ (1999, p. 426). Yet in-depth qualitative studies of individuals or cases are not easily linked to system-level patterns of outcomes and Nash (2002) notes the problems of models where different level variables have the same nominal scale and an undefined relationship to each other.

Rarely, in addition, is it considered in this kind of stratification research that whilst middle class, advantaged children may indeed be attaining more highly, their quality of learning may still be impoverished and may not represent where we would wish education to be. There is a concern about the growing instrumentalism of university students with respect to their learning (Woodall, Hiller, & Resnick, 2014), and high levels of attainment do not necessarily equate with enjoyment at school (Power, Whitty, Edwards, & Wigfall, 1998). Quality of learning and well-being cannot be taken for granted, even for high attainers, if they have come through an instrumentally driven system, let alone for lower attainers who will suffer the added shame of falling behind in the race. Yet we continue to foreground attainment outcomes in the sociology of education as a proxy for the quality and purpose of education overall, conflating use-value with exchange-value in Sayer’s distinction (1999). Considering educational quality more holistically repositions the focus away from measurable levels of potential, ability and attainment, towards optimal learning contexts.

Concluding comments: the importance of holistic theorising and pluralist methodologies for progressive conceptualisations of academic ability

Understandings of academic ability seem to be in many ways stubbornly linked to historic understandings (White, 2006), as well as disciplinary interests (Mazzoli Smith, 2014). The framework of measurable attainment outcomes, standardised age-related development and innate conceptualisations of cognitive ability that are operationalised in school-based practice are not only deeply contested from a range of differing disciplinary perspectives, but arguably also fail to deliver with respect to the challenges of the changing world. Areas within even the field of gifted education are ‘moving increasingly towards recognizing the fluid and multifaceted qualities of high potential and its contextual, dynamic, and emergent nature’ (Dai, 2013, p. 99) and this may therefore be a beneficial, if unlikely, place for the sociology of education to turn.

In the field of research still anachronistically referred to as gifted education, research on academic ability is increasingly concerned with evaluative questions about the purpose of education, drawing on methodological pluralism in order to counter a troubled past and the stratified nature of cohorts of gifted pupils. The progressive end of the field tends towards a broad, holistic conceptualisation of academic ability (and intelligence) as a fluid capacity or disposition in context (Sternberg, 2004), in direct contradistinction to a fixed, ontologically reductive understanding still implicated in instrumentally conceived approaches in sociological research, as described earlier. Some conceptualisations move beyond such bounded constructs altogether, to talk of a paradigm shift from a categorical model of identification of the few, where concepts such as ‘giftedness’ and

‘potential’ are largely opaque, to a focus on developmental diversity and the contextual nature of learning (Borland, 2005; Matthews & Dai, 2014; Matthews & Foster, 2005).

Current research findings show enormous differences in the way that children develop, including in their timing and growth patterns, their areas of interest, their motivation, and their capacity to respond to different kinds of learning challenges. Educators are realizing that the old way of identifying, labelling and segregating children by virtue of their general intelligence or academic ability test scores at one point in time, is harder and harder to defend. (Matthews & Foster, 2008, p. 3)

Here, there is a focus on the significance of the future in the present for learning, but not in an instrumental way: ‘Everything we see in children is transitional, promises and signs of the future ... not to be treated as achievements, cut off and fixed; they are prophetic, signs of an accumulating power and interest’ (Dewey, 1902, p. 14, quoted in Hymer, 2009, p. 301). Foregrounding the relational and contextual in conceptualising academic ability will help to mitigate the reductive trap discussed earlier. ‘when one expands their unit of analysis to consider person-in-situation, much of the knowing that was traditionally placed in the head of the learner can now be found in the interaction’ (Barab & Plucker, 2002, p. 169).

The argument in this paper has sought to highlight the reductive logic of both the psychometric approach to academic ability and related constructs, in terms of biological reductionism, and how this is also implicated in structural/constructivist approaches that can defer to this logic, whilst also disavowing it. Three areas of critique have been demarcated: how research on educational stratification can adopt a contradictory stance with respect to conceptualising academic ability as socially constructed, whilst also deferring to data based on innate measures that are reductive and limiting in practice; how cultural reproduction theory is itself a powerful social construction which evinces a determinism that can reinforce a fixed understanding of ability through over-investment in the concept of cultural capital, with ramifications on equal learning opportunities for all; how a narrow focus on educational stratification reifies instrumental outcomes and thereby devalues the broader purposes of education mitigating holistic theorising and methodological pluralism. Both the psychological and sociological approaches outlined earlier, in their reductive logic and outcomes, fail to engage with progressive conceptualisations of academic ability based on person-in-situation ‘as the minimal meaningful ontology for describing talent, ability, or even knowing’ (Barab & Plucker, 2002, p. 174). This has resulted in a situation in which schools lack a clear, holistic conceptualisation of academic ability beyond a measure of constructs such as cognitive ability that would arguably better serve all their pupils and facilitate a more useful and humane attention to quality and purpose in education in a far wider sense. Progressive models of academic ability drawing on more holistic theorising and methodological pluralism will also serve to enhance the explanatory power of the concept of academic ability.

The implication for education policy and school-based practice, therefore, lies in the fact that reductive and deterministic conceptualisations of academic ability retain more authority than might be thought to be the case. If this is so, it is not the direction of travel in which we would want to go, given what the research referred to earlier suggests is progressive relative to educational practices in the future. A key recommendation would

then be that academic ability is treated more problematically and in need of greater focus at a meta-level, taking account of ontological and epistemic concerns in a more rigorous manner. Non-reductive theorising and methodological pluralism are more likely to move us towards more progressive practices in relation to academic ability than are dominant approaches at present.

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